E/CONF.39/D/50
SUMMARY
3 Oct.1962
ORIGINAL : ENGLISH

UNITED NATIONS CONFERENCE
ON THE APPLICATION OF SCIENCE AND TECHNOLOGY
FOR THE BENEFIT OF THE LESS DEVELOPED AREAS

SUMMARY

Agenda Item: D.6.1.

United Arab Republic

METHODS OF IMPROVING THE QUALITY OF LOW GRADE EGYPTIAN COTTON PRODUCTS, THROUGH IMPROVED METHODS OF PROCESSING

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METHODS OF IMPROVING THE QUALITY OF LOW GRADE EGYPTIAN COTTON PRODUCTS, THROUGH IMPROVED METHODS OF PROCESSING

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SUMMARY

Lower grades of Egyptian cotton varieties represent about 12% of the total cotton production and amounts to the substantial amount of 45.000 tons yearly. These cottons are not usually available for the export market and are almost entirely locally consumed. This serves a two fold purpose; consuming the lower cotton grades which, though progressively decreasing from year to year, yet represent non too negligible amount of the national income and to make available fabrics cheap enough to be within the buying power of the lower income groups of the population.

The quality of these fabrics has been substantially improved through methods of processing, and the inferior quality expected from using such lower grades of cotton is minimized to a great extent and the final fabrics are cheap, relatively strong, pleasing and readily saleable.

Difficulties in processing such diversent qualities of raw material are expected and arise from the fact that such cottons have in common, to varying extents, the following features: high percentage of immature and dead fibres, fibres on the coarser side of the fineness scale, higher discrepancy in fibre length uniformity and higher percentage of impurity contents.

The measures taken to overcome these difficulties and the practice adopted by some textile mills in the UAR may be summerized as follows:

a. Spinning and Weaving:

1. Blowing room: Effecting efficient opening and cleaning in the blowing room by: strict blending procedure, adjusting speeds and settings of spiked lattices to minimize idle time and hence more effective cleaning; by passing and/or replacing severe-action beaters by combination of porcupine, kirschner

and saw-teeth type beaters; producing lighter laps of about 400 grams/M.

2. Card room: Ensuring favourable carding conditions by: lowering rate of production to the order of 4 kg/card/hr.; using metallic card clothing in preference to flexible foundation clothing or otherwise fitting the card with a continuous stripping device; raising taker-in speed up to 650 rpm; setting the mote-knives closer; altering the settings of back and front sheets to keep the nep count, down. The card sliver thus produced would be of improved draftability due to more effective fibre to fibre isolation, and the nep count should not be much more than that of the scutcher's lap.

3. Drawing, speed and ring frames: Utilization of efficient drafting systems on the drawing; speed and ring frames is essential since the card slivers, though much improved in quality, yet they are still inferior to those produced from the higher grades of cotton, and better fibre control is made possible by using the 3 over 4 and double apron drafting systems on drawing, speed frames and spinning frames respectively.

4. Weaving and weaving preparation: Special care is given to yarn clearing and warp preparation especially sizing. The improved weaving preparation will permit power looms to work with reasonable efficiency. The grey cloth thus produced is less dirty but sufficiently strong for its end uses.

b. Finishing:

The relative importance of various finishing processes and how to get the maximum benefit out of each, if applied to low grade cotton fabrics, may be summarized in the following:

1. Bleaching: Low grade cotton fabrics, naturally contain more in sizing material, impurities and hairiness. These conditions necessitate efficient cleaning, brushing and shearing to remove the most parts of impurities, knots and hanging threads. Singeing follows to remove surface fibres; then efficient desizing is imperative to the success of the subsequent bleaching and dyeing operations. The addition of caustic soda, sodium silicate and surface active agents, in the kier boiler, would realize the best results in removing dirts and oily stains.
Then, bleaching would be on easy operation, and is generally performed by using hypochlorite.

2. Mercerising: Full mercerisation is not generally practiced, but semi-mercerisation is often used to serve manifold purposes:

a - increasing dyestuff absorption
b - removing rope creases in cloth
c - reducing bad response of dead fibres of dyeing
d - increasing the tensile strength and elasticity of cloth.

3. Dyeing: Contrary to the common belief, low grade cotton fabrics should be dyed with dyestuffs of fairly good fastness, as their service conditions necessitate more frequent hand washing and more exposure to sunlight. The resistivity of immature and dead fibres to dyestuffs, represents a major difficulty encountered in dyeing. Semi-mercerisation would help to a certain extent in solving the problem. The rest depends on the appropriate selection of dyestuffs to be utilized.

4. Printing: Printing process, by its nature, tends to cover the inferiorities in cloth texture, and thus, is considered to be the process most widely adapted for this class of fabrics. Practice in printing and recommended dyestuff are given in the text.

5. Finishing and dressing: Among the various effects obtained from finishing processes, the following are considered representing the general practice:

(a) Filling: the filling materials commonly used are starch and dextrine; glue is added in small amounts, to increase stiffness. This type of finish is not permanent.

(b) Softening: if soft finishes are required, softeners such as, turkey red oil, or synthetic softeners are added to the dressing composition.

(c) Optical whitening: agents are often added in the dressing composition to increase the degree of whiteness for white goods or printed goods with white ground.

(d) Lustering: is performed on calenders to varying extents. A special calendering, called chasing, is utilized to enhance the cover to low cotton grade fabrics.

(e) Raising: is one of the most successful finishes applied to low grade fabrics, the advantage being that raising conseals almost entirely the inferiorities of fabric texture.

(f) Surface coating: apart from clothing purposes, low grade cotton fabrics are coated with synthetic resins, for manifold purposes in industry and household utilities.

(g) Flocking: low grade fabrics are much used as a ground for flocking which gives an imitation of velvet, and covers at the same time texture faults already present in ground fabrics.

TABLE "I"

PRODUCTION STATISTICS OF EGYPTIAN COTTONS CLASSIFIED BY GRADES AND STAPLE LENGTHS

SEASON	LONG-STAPLE VARIETIES					LONG-MEDIUM STAPLE VARIETIES					MEDIUM-STAPLE VARIETIES					TOTAL OF ALL VARIETIES				MIXED LOT MIXED & SCARTO		GRAND TOTAL
	Up to FGF/G		FGr/F to Extra		TOTAL	up to FGF/G		over FGF/G to Extra		TOTAL	up to FGF/G		over FGF/G to Extra		TOTAL	up to FGF/G		over FGF/G to Extra				
	Tons	%	Tons	%	Tons	Tons	%	Tons	%	Tons	Tons	%	Tons		Tons	Tons	%	Tons	%	Tons	%	Tons
1954/1955	4777	4.22	108525	95.78	113302	7992	9.67	74641	90.33	82633	16496	12.20	118692	87.80	135188	29265	8.41	301858	86.75	16846	4.84	347969
1955/1956	7174	6.15	109446	93.85	116620	6646	11.39	51715	88.61	58361	23287	16.34	119232	83.66	142519	37107	11.11	280393	83.97	16401	4.92	333901
1956/1957	5467	4.21	124408	95.79	129875	3626	6.90	48942	93.10	52588	18083	14.20	109225	85.80	127308	27176	8.37	282575	87.08	14744	4.55	324495
1957/1958	8941	4.99	170219	95.01	179160	2657	10.04	23815	89.96	26472	23104	13.37	149708	86.63	172812	34702	8.81	343742	87.22	15659	3.97	394103
1958/1959	10973	4.28	245349	95.72	256322	569	6.62	8029	93.38	8598	25786	15.99	135502	84.01	161283	37328	8.44	388880	87.98	15786	3.58	441994
1959/1960	7306	3.17	223499	96.83	230805	1301	3.78	33087	96.22	34388	20867	11.81	155402	88.16	176269	29474	6.46	411988	90.41	14226	3.13	455688
1960/1961	4907	2.20	218268	97.80	223175	1732	3.60	46392	96.40	48124	17377	9.43	166861	90.57	184238	24016	5.10	431521	91.88	14116	3.02	469653
1961/1962	4574	3.36	131428	96.64	136002	6138	16.11	31957	83.89	38095	14185	8.92	144751	91.08	158936	24897	7.19	308136	89.04	13022	3.77	346055
TOTAL	54119		1331142		1385261	30661		318578		349239	159185		1099373		1258558	243965		2749093		120800		3113858
AVERAGE	6765	3.91	166393	96.09	173158	3833	8.78	39822	91.22	43655	19898	12.65	137422	87.35	157320	30496	7.83	343637	88.29	15100	3.88	389233

TABLE "II"

STATISTICS OF EGYPTIAN COTTONS LOCAL CONSUMPTION BY GRADES AND STAPLE LENGTHS

	LONG STAPLE VARIETIES					LONG MEDIUM STAPLE VARIETIES					MEDIUM STAPLE VARIETIES					TOTAL OF ALL VARIETIES				MIXED LOW MIXED & SCARTO		GRAND TOTAL
	up to FGF/G		over FGF/G to Extra		Total	up to FGF/G		over FGF/G to Extra		Total	upto FGF/G		over FGF/G to Extra		Total	up to FGF/G		Over FGF/G to Extra				
	Tons	%	Tons	%	Tons	Tons	%	Tons	%	Tons	Tons	%	Tons	%	Tons	Tons	%	Tons	%	Tons	%	Tons
1955/1956	2978	89.48	350	10.52	3328	4457	56.49	3433	43.51	7890	31116	46.39	35965	53.61	67081	38551	44.61	39748	46.00	8110	9.39	86409
1956/1957	3706	65.33	1967	34.67	5673	6946	65.68	3630	34.32	10576	35853	58.28	25663	41.72	61516	46505	52.01	31260	34.96	11658	13.03	89423
1957/1958	5087	54.83	4191	45.17	9278	2434	25.08	7270	74.92	9704	38144	57.15	28605	42.85	66749	45665	47.44	40066	41.62	10531	10.94	96262
1958/1959	8391	49.28	8636	50.72	17027	1635	38.43	2619	61.57	4254	45745	61.51	28619	38.49	74364	55771	54.12	39874	38.69	7409	7.19	103054
1959/1960	4075	23.53	13245	76.47	17320	387	14.84	2220	85.16	2607	22060	27.20	59035	72.80	81095	26522	24.96	74500	70.11	5234	4.93	106256
1960/1961	1963	14.75	11348	85.25	13311	1328	21.37	4887	78.63	6215	15710	16.75	78092	83.25	93802	19001	15.87	94327	78.79	6385	5.34	119713
TOTAL	26200		39737		65937	17187		24059		41246	133628		255979		444607	232015		319775		49327		601117
AVERAGE	4367	39.74	6623	60.26	10990	2864	41.66	4010	58.34	6874	31438	42.43	42663	57.57	74101	38669	38.60	53296	53.20	8221	8.20	100186

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